The SCINCID GENERA *EGERNIA* and *TILIQUA* (LACERTILIA)

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Plate xxiii and text fig. 1–10.

This paper correlates our limited knowledge of the genera *Egernia* and *Tiliqua* and provides a working basis for further study. Approximately 475 specimens are studied; and of the 30 species and subspecies recognized, 28 have been examined. It will be necessary to collect and report on further material before satisfactory conclusions concerning distributions and inter-relationships of these lizards can be determined.

Except where otherwise indicated by the letters W.A.M. (Western Australian Museum) or Qld. Mus. (Queensland Museum) the registration numbers given are those of the South Australian Museum.

Mr. G. Mack, Director of the Queensland Museum and Mr. L. Glauert, Curator of the Western Australian Museum have kindly made available specimens in their charge, while Mr. J. R. Kinghorn of the Australian Museum, Sydney, has substantiated several details from material in that institution.

A REVISED CONCEPTION OF THE GENERA *EGERNIA* AND *TILIQUA*.

Boulenger (1887, p. 142) distinguished *Trachysaurus* Gray from its nearest ally, *Tiliqua* Gray, on several small variable scale details, such as the usual presence of an azygous occipital and the division of some of the subdigital lamellae, together with the abbreviated stump-like tail. Other than this latter character, which would appear to be a specialization rather than a basic phylogenetic character, there are no features in the single species which could be considered of value for generic separation. The general scalation, dentition and osteology are identical with those typifying *Tiliqua*. Reference of the stump-tailed *rugosa* to *Tiliqua* is paralleled by the admission of *stokesii* and *depressa* to *Egernia*. All three of these species show a caudal specialization but no basic differences from typical long-tailed members of their respective genera. The caudal vertebrae of *rugosa* taper uniformly to a point and are not dilated in any way to support the depressed tail.

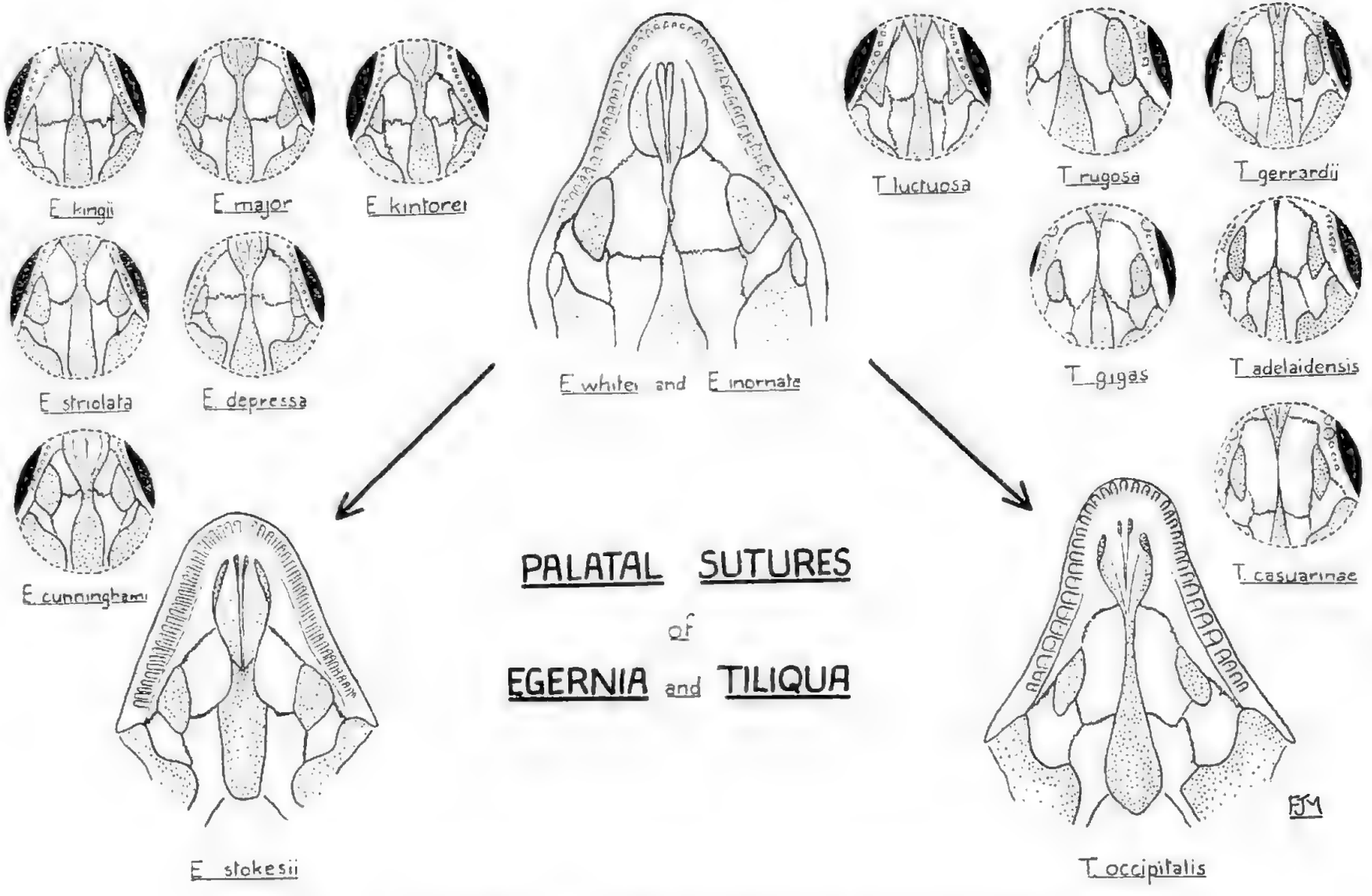

Fig. 1. A series of drawings illustrating the relative positions of the palatal sutures in the two genera and demonstrating the tendency toward a mean condition.

An examination of a single juvenile specimen of *Tiliqua scincoides gigas* (Schneid.) from Tanpora Island, near the extreme south-eastern tip of New Guinea, and several other members of *Tiliqua* has revealed a link between this genus and *Hemisphaeriodon* Peters. It has shown that the enormous spheroidal crushing teeth, stated to be characteristic of the latter genus, are not restricted to it, but are represented to varying degrees in several species of *Tiliqua*, being most prominent in subadult specimens. (Compare the enlarged teeth shown in plate 1, fig. a and b).

As but a single specimen was available to the writer, Mr. J. R. Kinghorn of the Australian Museum, Sydney, kindly examined this character in some of the specimens in his charge, and he has stated that although his specimens possessed enlarged teeth, none showed enlargement to the extent generally evident in *Hemisphaeriodon*. An examination of the dental characters of other members of the genus has revealed one other species, *T. casuarinae* (Dum. and Bibr.) with similar enlargement. (See plate 1, fig. c). This is a probable reason for the placing of the synonym *Hemisphaeriodon tasmanicum* Lucas and Frost in that genus. Many juvenile specimens of *T.s. scincoides* (Shaw) also possess one, sometimes two markedly enlarged teeth in each jaw.

The above data raise grave doubts regarding the value of this dental enlargement as a generic character, and as the scalation and osteology of *gerrardii* are typical of *Tiliqua* there would seem to be little ground for the retention of the generic name *Hemisphaeriodon*.

At the conclusion of his description of *Tiliqua longicauda* (= *gerrardii*), De Vis (1887, p. 816) refers to his two principal distinguishing characters, viz. the absence of a post-narial groove and the length of the tail, as "sufficiently distinctive—indeed generically abnormal". Although abnormal at that time, both of these features were ascribed to *Tiliqua* by M. A. Smith (1937) when he transferred four long-tailed species of *Omolepida* to *Tiliqua*. Only two of these are herein recognized. The post-narial groove is absent in *casaurinae* and only faintly present in *branchialis*. Peters' *luctuosa*, which is transferred from *Egernia* to *Tiliqua*, also lacks a distinct post-narial groove and has a tail of similar length and form to that of *gerrardii*. The action of Smith (*op. cit.*) has been confirmed by an examination of the palatal sutures and dentition of the transferred species.

The above reasons, together with the fact that the addition of *rugosa* and *gerrardii* to *Tiliqua* will not make that genus unwieldy, are considered sufficient grounds for regarding *Hemisphaeriodon* and *Trachysaurus* as synonymous with it.

Egernia and *Tiliqua* as now recognized can be separated readily as follows:

1. Palatine bones not sutured on the midline of the palate, pterygoid bones widely separated.

   (a) Pterygoid-transpalatine suture arising from a point on the orbital vacuity; teeth with acute, compressed crowns, slightly recurved .. .. *Egernia*

   (b) Pterygoid-transpalatine suture not contacting the orbital vacuity, but arising from a point on the palatine suture; teeth tending to be spheroidal or obtusely conical, not recurved .. .. *Tiliqua*

Fig. 1 shows that although extremes in each genus are readily distinguishable there is a marked convergent tendency in osteological, and to a lesser extent in dermal characters. This suggests that the two genera have separated relatively recently from a common stock and have developed along two monophyletic lines, indicated by the relative position of the pterygoid-transpalatine suture. Accepting this view, the most archaic species would appear to be the *Egernia whitei—inornata—kintorei* group. The palatal sutures of all species and races belonging to this group are almost intermediate between the two generic extremes, the pterygoid-transpalatine suture generally meeting the palatine suture very close to or on the orbital vacuity (see fig. 1).

Although the above hypothesis should be regarded as speculative at present because of the limited data on which it is based, it satisfies the line of thought which seems most useful.

The point now arises as to whether or not the above generic definitions should have been made absolute by the inclusion of *kintorei*, *whitei* and *inornata* in *Tiliqua*. If the definitions are accepted as absolute, the genotype of *Egernia*, (*whitei*) would be referable to *Tiliqua*, necessitating the designation of a new generic name for the remainder of the "*Egernia*" species.

In view, however, of the uniform gradation from the extreme *Egernia* to the extreme *Tiliqua* type condition, a third generic arrangement could be proposed. All species could be placed under *Tiliqua* with three subgeneric divisions, *Tiliqua*, *Egernia* and a new division.

For the sake of simplicity, the desirability of retaining well established names, and the doubtful value of proposing additional ones, the *whitei*, *inornata*, *kintorei* group are herein regarded as extreme members of *Egernia*, notwithstanding the fact that there are reasons to support each of the other alternatives.

EGERNIA Gray (1839, p. 288).

Palatine and pterygoid bones separated on the mid-line of the palate; lateral teeth generally more than 35 in number with acute, incipiently tricuspid crowns, slightly recurved; pterygoids toothless or with slight rugosities. Eyelids well developed, scaly; nostril pierced in the nasal, with or without a curved groove behind. Supranasals absent, prefrontals well developed; fronto-parietals and inter-parietal distinct, the latter completely separating the parietals. Body elongate: limbs short, pentadactyle; digits cylindrical or slightly compressed with inferior transverse lamellae.

KEY TO SPECIES AND SUBSPECIES OF *EGERNIA*.

Werner (1910, p. 472) constructed a large and cumbersome synoptic key to cover sixteen of the species and subspecies of this genus. Apart from difficulties in operating his key, its numerous inconsistencies, and its inaccessibility to many workers warrant the following dichotomic key, compiled from material examined during the preparation of this paper together with the type description of *frerei* Gunth., the only recognized species not available for examination.

1. Tail subcylindrical, almost as long as or longer than the head and body 3
2. Tail depressed, spinous, much shorter than the head and body .. 29
3. Dorsal and caudal scales smooth or faintly striated 5
4. Dorsal and caudal scales uni- or multi-carinate 17
5. Post- and/or sub-narial grooves present[1] 7
6. Post- and sub-narial grooves absent 15
7. A median row of laterally expanded upper caudals 9
8. Upper caudal scales uniform 11
9. Expanded upper caudals present on anterior half of tail *striolata striolata*
10. Expanded upper caudals on posterior half only .. .. *striolata nitida*
11. A complete series of infraoculars 13
12. No complete series of infraoculars .. .. *formosa*
13. Fifth and sixth upper labials subocular .. .. *inornata*
14. Sixth and seventh or seventh and eighth upper labials subocular *kintorei*
15. 32–40 midbody scale rows .. .. *whitei whitei*
16. 40–46 midbody scale rows .. .. *whitei multiscutata*
17. Dorsal scales unicarinate .. .. *cunninghami*
18. Dorsal scales multicarinate 19
19. Less than 30 midbody scale rows; 5 or 6 supraciliaries .. .. *dorsalis*
20. More than 30 midbody scale rows; 6–10 supraciliaries 21

[1] Grooves present, but often difficult to distinguish in *inornata* and *kintorei*; specimens should be examined closely with a lens.

21. A complete series of infraoculars 23
22. No complete series of infraoculars 27

23. Dorsal scales obtusely bicarinate .. .. *frerei*
24. Dorsal scales obtusely tri- or quadricarinate 25

25. Dorsal colouration light brown; two grey dorso-lateral stripes *major major*
26. Dorsal colouration dark umber; bright yellow ventrally *major bungana*

27. Sixth and seventh upper labials subocular .. .. *kingii*
28. Fifth and sixth upper labials subocular .. .. .. *whitei napoleonis*

29. Caudal scales unicuspid .. .. *stokesii*
30. Caudal scales tricuspid .. .. *depressa*

EGERNIA WHITEI WHITEI (Lacepede).

Scincus whitii Lacepede, 1804, p. 192.

Egernia whitii Boulenger, 1887, p. 135.

Egernia whitei tenebrosa Condon, 1941, p. 111.

The characters used by Condon (1941, p. 111) to distinguish the melanic Kangaroo Island specimens as the subspecies *tenebrosa* are invalid. The separation of the parietals by the interparietal is a generic characteristic. One pair of enlarged nuchals is present in all Kangaroo Island specimens examined including the type (R2161). A percentage of South Australian mainland specimens are also melanic.

An examination of fifty specimens revealed the following variations. The midbody scale counts varying from 32–40, fell as follows: 32, (7 specimens); 33, (4 specimens); 34, (19 specimens); 35, (7 specimens); 36, (12 specimens); 37 (1 specimen); 38, (7 specimens); and 40, (2 specimens). With the exception of five specimens from Tasmania (R2895) all specimens have the nasals separated and the prefrontals forming a median suture. The Tasmanian specimens agree with the findings of Loveridge (1934, p. 336) and the collection of more material from Tasmania and Eastern Australia may reveal the separation of the prefrontals to be a character sufficiently constant to provide a basis for the designation of a separate subspecies. Usually seven upper labials (fifth and sixth subocular), but many possess eight (with the sixth and seventh subocular). Supraoculars five, with seven or eight supraciliaries. The basic colour pattern is fairly constant although sometimes partly or fully obscured by a uniformly dark grey or brown suffusion.

Average adult length: 215 (79+136) mm.

Distribution: Coastal districts of Eastern South Australia, Victoria, New South Wales, Tasmania and adjacent islands. Type locality, Australia (no exact data).

Loc. South Australia: R2573, Wareowie; R2896 (2 specimens), Coorong; R2897 (2 specimens), Yorke Peninsula; R2161 (holotype of *tenebrosa* Condon), R794, R1356 (3 specimens), R2665, R1185 (2 specimens), R1760 (6 specimens), R2907 (12 specimens), Kangaroo Island; R2901, Sweat Island, Pondalowie Bay; R2877 (3 specimens), Waitpinga; R1649, Basket Range; R1696 (2 specimens), West Island, Encounter Bay; R2918 (2 specimens), Neale Camp No. 1 (near Oodnadatta ?). Victoria: R1146, Nelson. Tasmania: R2895 (5 specimens), no exact data. Western Australia: R2980, between Victoria Springs and the Frazer Range.

EGERNIA WHITEI MULTISCUTATA Mitchell and Behrndt.

Egernia whitii multiscutata Mitchell and Behrndt, 1949, p. 176, fig. 2.

An examination of material from Eyre Peninsula, South Australia and several of the adjacent islands has revealed this race to have a more extensive distribution than was suspected originally. Typical specimens have now been examined from several localities on the mainland as well as from Thistle and Flinders Islands. The characters used to distinguish the Greenly Island specimens apply equally to this additional material.

Variations noted in the 31 specimens examined are as follows: Midbody scale counts 40, (2 specimens); 41, (2 specimens); 42, (8 specimens); 43, (11 specimens); 44, (5 specimens), and 46 (3 specimens). The general enlargement of the interparietal is evident in all specimens, it being in the extreme 1½ × as wide as the frontal. Whereas in the typical race many specimens were found to possess only seven upper labials, all specimens of *multiscutata* so far examined have eight with the sixth and seventh suboecular. The basic colour pattern is similar to that of the type race although more striking and inclined to be broken up by irregularly distributed light edged scales in the insular populations. In two specimens the patterning is obscured by a darker colour.

Distribution: Eyre Peninsula, South Australia and adjacent islands.

Loc. South Australia: R2636, Greenly Island (holotype, allotype and eight paratypes); R2549 (2 specimens), Fishery Bay; R2547 (2 specimens), Thistle Island; R2902, R2903, R2905, R2906 (15 specimens), Flinders Island; R2908, Fowler Bay; R1274, Coffin Bay.

EGERNIA WHITEI NAPOLEONIS Gray.

Egernia napoleonis Gray, 1839, p. 290; Loveridge, 1934, p. 340.
Egernia pulchra Werner, 1910, p. 470.

Midbody scales in 36 rows (3 specimens); 37 rows (3 specimens); 38 rows (3 specimens); 40 rows (1 specimen). Supraoculars four, doubtfully five;

supraciliaries 7 or 8; 22–27 subdigital lamellae; a single pair of nuchal shields. Fifth and sixth upper labials subocular in nine specimens and the sixth and seventh in one specimen; 2–5 auricular lobules. Dorsal scales usually obtusely bi- or tri-carinate but almost smooth in four of this series.

A comparison of this material with Southern and Eastern Australian *whitei* has revealed a subspecific relationship, specimens such as W.A.M. R1384 with five upper labials anterior to the subocular and smooth dorsals being almost indistinguishable from *whitei whitei*. However, the average specimen is distinguishable by the obtuse keeling of the dorsal scales and the more constant presence of only four upper labials anterior to the subocular. The association of *napoleonis* with *whitei* is further confirmed by an examination of the palatal sutures, the condition in each case being identical. A gravid female taken in January, 1938 (W.A.M. R6799) contains two young in an advanced stage of development.

Werner's figure of *E. pulchra* (1910, fig. 6) is somewhat misleading, the snout being shown as depressed with a slightly projecting labial edge. This is not confirmed by the cotype [Michaelsen and Hartmeyer collection R11345 (W.A.M.)] or any of the other material examined, the snout being shorter and more rounded than in *whitei whitei*.

Distribution: South Western Australia. Type locality, Australia (no exact data).

Loc. Western Australia: W.A.M. R4517, Chorkerup; W.A.M. R266, R267, R268, Denmark; W.A.M. R3535, Ongerup; W.A.M. R1384, Stirling Range; W.A.M. R6799, R6800, Eclipse Island; W.A.M. R2563, Nanga Brook; Michaelsen and Hartmeyer Collection R11345—cotype of *E. pulchra* Werner (deposited in W.A.M.).

EGERNIA WHITEI CARNARAE Kinghorn.

Mr. Kinghorn has requested me to make the following correction in regard to the above name. The type of *E. whitei carnarae* (Kinghorn 1931), No. R9931 in the Australian Museum collection later proved to belong to the genus *Lygosoma*, and was redescribed and figured as *Lygosoma* (*Hinulia*) *breviunguis* (Kinghorn 1932).

Mr. Kinghorn writes, "An examination of the original of my manuscript shows that through carelessness in cutting out some notes on other species, the correction regarding *carnarae* and *breviunguis* was also deleted and the error overlooked until after the publication of the description."

A comparison of Kinghorn's figure and description of *breviunguis* (1932,

p. 301) with two specimens of *Lygosoma* (*Sphenormorphus*) *ocelliferum* Boulenger in the South Australian Museum Collection has verified the conclusion of Loveridge (1934, p. 344) that the two are synonymous.

EGERNIA INORNATA Rosen.

Egernia inornata Rosen, 1905, p. 139, fig. 3.
Egernia striata Sternfeld, 1919, p. 79.
Egernia kintorei (in part) Stirling and Zietz, 1893, p. 171.

Loveridge (1938, p. 187) raises a problem in regard to this species. He examined the gonads of a series of 24 specimens which he had formerly (1934, p. 337) referred to *inornata* Rosen and was led to the conclusion that this material was immature. He compares these with two adult specimens (one of which is gravid) from Officer Creek, South Australia, which have a higher number of midbody scale rows (viz. 46 and 48) and suggests that they may be adults of *inornata*. He was unable to adequately distinguish the two series on dermal characters. After an examination of the gonads of the specimens recorded in this paper the author was unable to repudiate or confirm the findings of Loveridge (1938), for although no positive sign of maturity was found, the gonads of several fresh specimens did appear to be fairly well developed.

Two juveniles and seventeen adults of a large lizard with 44–50 midbody scale rows are herein separated off under the name *E. kintorei* S. and Z., the main distinguishing feature being the possession of five or six upper labials anterior to the first suboecular as compared with only four in *inornata*. The colouration of the lectotype of *kintorei* is very close to that described by Loveridge for his "adult *inornata*" specimens, and it is suggested that his two specimens may be referable to *kintorei*. It is expected that further collecting will reveal the adult size of *inornata* to be about 230 mm. Present locality data would seem to indicate that the distribution of *inornata* completely encloses and overlaps that of *kintorei*.

Notwithstanding the present data the status and relationship of the species and races in the *whitei-inornata-kintorei* group is very unsatisfactory and should make an interesting biogeographical study when more material is available for examination.

The two small specimens referred to *Egernia kintorei* by Stirling and Zietz, have been examined and found to belong to *inornata*.

Midbody scales in 36 rows (7 specimens); 38 rows (17 specimens); 40 rows (10 specimens); 42 rows (3 specimens)—smooth. Prefrontals making a short

median suture; upper labials constantly seven, fifth and sixth suboecular; interparietal short and wide, as wide as or wider than the frontal. Post-narial groove generally absent but a very faint groove is evident around the posterior edge of the nostril in several specimens. Sub-narial groove invariably present, but faint in some specimens.

The ground colour varies from rust-red through pink-tinged cream to light fawn. Dorsal surface uniformly coloured, irregularly speckled with black or with regular longitudinal striations. Some specimens have a continuous dark dorso-lateral stripe and two have continuous black vertebral stripes. Both of these stripes are generally broken into irregular spots. Ventral surfaces white.

Measurements of the largest specimen. 158 (96+62) mm.—tail incomplete.

Distribution: Central Australia—probably occurs in the inland districts of all mainland States with the possible exception of Victoria.

Type locality: West Australia (no exact data).

Loc. South Australia: R2911 (10 specimens), Mt. Burrell Station, R557, Purnong; R754, near Tingatingana; R22 (2 specimens), Bow Hill, River Murray; R692 (3 specimens), 408-mile station, East-West Railway; R602, Oodnadatta; R2917 (11 specimens), Neale Camp No. 1 (near Oodnadatta?). Western Australia: R2915, Frazer Ranges; R2916, between Victoria Springs and Frazer Ranges. Northern Territory: R2918 (6 specimens), Tennant Creek; R321, Macdonnell Ranges.

EGERNIA KINTOREI Stirling and Zietz.

Egernia kintorei Stirling and Zietz, 1893, p. 171.

Egernia dahlii Boulenger, 1896, p. 233; Werner, 1909, p. 42.

The large specimen whose measurements and colouration were described by Stirling and Zietz is here designated the lectotype and as a consequence *E. dahlii* Boulenger is, as was suspected by Loveridge (1934, p. 337) a synonym of it. As has already been pointed out the two small paratypes of *kintorei* are referable to *inornata* Rosen.

Redescription: Body short, stout, the adpressed limbs slightly overlapping; the distance between the tip of the snout and the forelimb is contained once and one-half in the distance between the axilla and the groin. Snout short, rounded; with two vertically rectangular loreals; nostrils pierced in the nasals which are separated on the midline by the fronto-nasal which forms a suture with the rostral. A sub- and a faint post-narial groove present. Prefrontals forming a median suture. Five supraoculars, second largest, as wide as the

frontal; nine or ten supraciliaries, first largest. First and second supraoculars contacting the frontal. Fronto-parietals form a large median suture; interparietal as long as and slightly wider than the frontal; parietals short and wide. A complete series of infraoculars and one pair of enlarged nuchal shields present. Eight upper and ten lower labials, the eighth upper largest and the sixth and seventh suboecular. Ear opening oval, as long as the eye opening with five rounded lobules anteriorly. Dorsal and lateral scales smooth or faintly striated; forty-six at midbody; dorsals slightly larger than the laterals and ventrals.

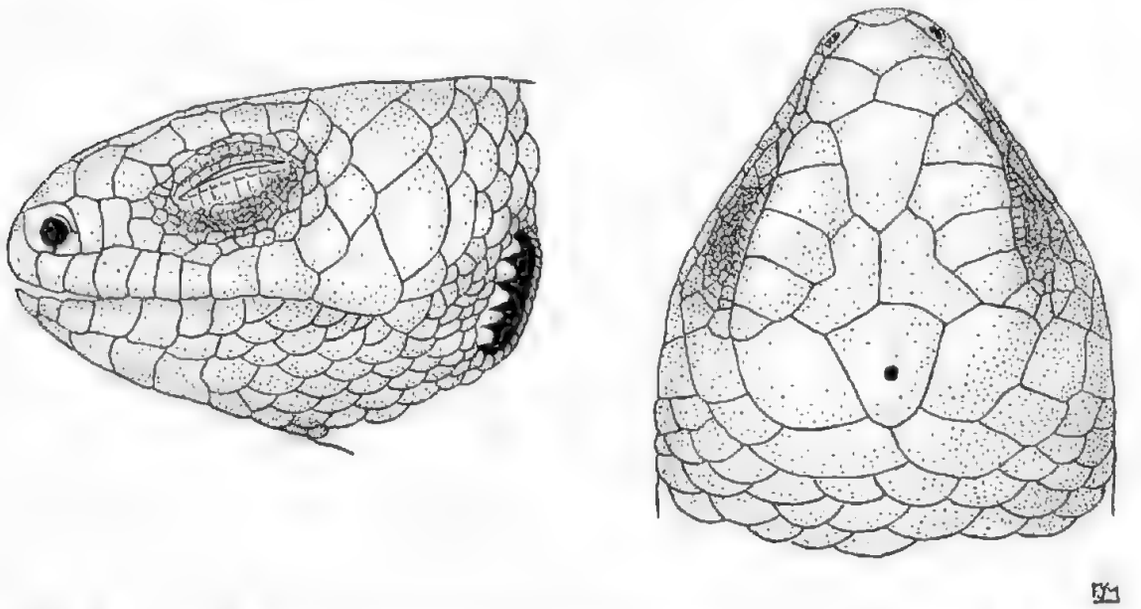

Fig. 2. *Egernia kintorei* Stirling and Zietz: dorsal and lateral views of the head—adapted from the lectotype.

Colour: Red brown above with faint darker lines running longitudinally between the series of scales. Faint vertical barring on the flanks. Ventral surfaces pale yellow.

Measurements: Owing to the position in which the body has set it is difficult to obtain accurate measurements and therefore those of Stirling and Zietz are quoted. Total length, 360 mm.; head, 35 mm.; body, 150 mm.; tail, 175 mm.; length of forelimb, 55 mm.; length of hind limb, 60 mm.

In addition to the lectotype, eighteen specimens were examined and the following variation noted. Midbody scales in 44 rows (3 specimens); 46 rows (9 specimens); 48 rows (4 specimens); 50 rows (2 specimens). The postnarial groove is constantly present, but very faint in several specimens. The scalation on one side of the head of lectotype is irregular, several of the major scales being subdivided. A number of specimens possess slightly enlarged

anal plates and one has two instead of the usual single pair of nuchals. The majority of adult specimens are coloured uniform pale yellow in spirit with no darker markings. Two juvenile specimens have a red and yellow mottling on the dorsal surface, and conspicuous vertical barring on the flanks.

Distribution: Central and North-western Australia—probably also occurs in Western New South Wales and Queensland.

Loc. Western Australia: R2925, Northern Victoria Desert (lectotype); R2923 (5 specimens), Calvert Expedition. South Australia: R2114, Innamincka; R2920 (3 specimens), Neale Camp No. 1 (near Oodnadatta?). Northern Territory: R2921 (6 specimens), no exact data; R2922 (3 specimens), Tennant Creek.

EGERNIA STRIOLATA STRIOLATA (Peters).

Tropidolepisma striolatum Peters, 1870, p. 642.

Although originally recorded as being restricted to Queensland this species appears to be widely distributed in Eastern, Southern and South-western Australia. Fourteen specimens of the type race were examined, twelve from South Australia and two from Queensland.

Midbody scales in 30 rows (6 specimens); 32 rows (4 specimens); 34 rows (4 specimens),—dorsals obtusely tri- or quinquecariante, almost smooth in several of the South Australian examples. Prefrontals usually forming a short median suture but separated in Queensland Mus. J7425; nasals separated or making point contact; eight upper labials with the sixth and seventh subocular; a series of laterally expanded upper caudals usually starts 5–9 scales along the tail from the level of the vent—R2910 has no laterally expanded upper caudals.

General ground colour of the two Queensland specimens is grey-brown; a dark vertebral stripe on the nape breaks up into six longitudinal series of quadrangular markings each half the width of a scale. There is also a dark dorso-lateral stripe extending down each side of the body which breaks up about half way along into an irregular series of dark spots. Ventral surfaces lighter, with an irregular series of darker markings under the throat; upper labials and auricular lobules white.

The South Australian material differs in having a much lighter ground colour and the dark dorso-lateral stripes extend only to above the forelimb where they fade uniformly into the ground colour. The longitudinal series of quadrangular spots are much narrower, each being only about one quarter the width of a scale and are restricted to a mid-dorsal sequence of three or four rows. Between this sequence and the dark dorso-lateral stripe is a uniformly coloured light band which is well defined near the nape. No darker ventral markings.

Average adult length. 227 (104 + 123) mm.

Distribution. Queensland, New South Wales, Victoria and South Australia. Type locality, Lake Elphinstone, Queensland.

Loc. Queensland: Qld. Mus. J263, Toowoomba; Qld. Mus. J7425, South Pine River. South Australia: R2909 (3 specimens), Morgan; R2910, Ooldea; R2625, Burra; R2911 (2 specimens), Mern Merna; R2912, Flinders Ranges; R2913, Kilkenny, Adelaide; R965, Henley Beach, Adelaide; R2055, Payneham, Adelaide.

EGERNIA STRIOLATA NITIDA (Gray).

Trapidolepisma nitida Gray, 1845, p. 106.
Egernia carinata Smith, 1939, p. 11, fig. 3.

A comparison of the variation shown by this series of 28 specimens with that of the fourteen typical *striolata* examined indicates that the two are subspecifically related. The two specimens R2894 would appear to be in the zone of intergradation between the typical race and *nitida*. Also, a comparison of Smith's excellent figure and description of *carinata* (1939) with the present subspecies reveals the two to be synonymous.

Midbody scales in 30 rows (4 specimens); 31 rows (1 specimen); 32 rows (5 specimens); 34 rows (7 specimens); 35 rows (4 specimens); 36 rows (5 specimens); 37 rows (1 specimen) and 38 rows (1 specimen)—dorsals tricarinate with occasional quadri- and quinquecarinate scales on the anterior third of the body; the keeling varies from very acute to obtuse, the two conditions sometimes occurring in the one specimen. Interparietal narrower than, but almost as long as the frontal; prefrontals narrowly separated or forming a short median suture; nasals separated or making point contact on the midline; two or three pair of pluricarinate nuchals. Four, doubtfully five supraoculars; 6–8 supraciliaries; 2–4 white auricular lobules; 20–24 lamellae beneath the fourth toe. Generally five upper labials anterior to the first subocular, but in three specimens only four; laterally expanded uppercaudals seldom occur on the anterior half of the tail.

Dorsal ground colour grey-brown, with an ill-defined dark dorsolateral stripe extending from the temporal region to about half way along the body where it breaks up into an irregular series of spots. Three to five longitudinal series of quadrangular spots, each half the width of a scale extend along the body and often along the tail also. In several specimens these spots have lost their serial arrangement and are scattered irregularly, while in others the spots are without the angular form typical of the average specimen; labia and auricular

lobules light, each labial with a dark perimeter. In two very dark specimens there are numerous white-edged scales on the lateral surfaces and a white spot in the centre of each labial.

Two specimens from Eclipse Island (W.A.M. R6801, R6802) have a distinctive colour pattern which seems worthy of description. The scalation of these two specimens does not differ appreciably from an average example but it is noted that the frontal and interparietal are of similar size and shape. Midbody scales, 36 in both specimens. General ground colour olive-green; the black dorsolateral lines extend from the temporal region to above the hind limb where each becomes broken into a double series of spots along the tail. The series of quadrangular dorsal spots have become fused into three continuous but irregular longitudinal lines each two scales wide. Majority of head shields dark edged; ventral surfaces uniform blue-grey; labia and auricular lobules light.

Distribution. South-western Australia and adjacent islands. Type locality, Australia (no exact data).

Loc. Western Australia: W.A.M. R6801, R6802, Eclipse Island; W.A.M. R6058, Waddington; W.A.M. R8014, Norseman; W.A.M. R6103, R6104, R6109, Kukerin; W.A.M. R1533, R1534, R1535, R1536, Tambellup; W.A.M. R1163, R1164, R1165, R1166, R1167, R8374, Bridgetown; W.A.M. R6816, Witcheliffe; W.A.M. R6788, Albany; W.A.M. R4486, Chorkerup; W.A.M. R4604, Margaret River; W.A.M. R1998, R818, Stirling Range; W.A.M. R4366, Wandering; W.A.M. R265, Kent River. Also R2894 (2 specimens), between Frazer Range and Southern Cross.

EGERNIA FORMOSA Fry.

Egernia formosa Fry, 1914, p. 184; Loveridge, 1934, p. 338.

Nasals and prefrontals forming short median sutures or separated. Four doubtfully five supraoculars; 7–8 supraciliaries; two or three pair of enlarged nuchals. Four upper labials anterior to the first subocular; 28 or 30 (Loveridge, 1934 records 28–32) faintly striated midbody scales; 18–20 transverse lamellae under the fourth toe. Loveridge (1934) examined seventeen specimens and was unable to find any post-narial grooves. These are definitely present in this material. The colouration agrees generally with Fry's description and is constant enough to provide an excellent guide for ready identification.

Fry draws attention to the resemblance of *formosa* to *striolata*, but using Werner's key (1910, p. 472) compares it with *luctuosa* and its synonym *lauta*, herein placed in the genus *Tiliqua*: these are comparatively remote from *formosa* which would seem to have been derived from similar stock to *striolata*. The distribution of all three species overlap in South-western Australia.

Unfortunately three of the four specimens examined are without exact locality data, one of these being the cotype figured by Fry (1914, fig. 4).

Distribution. South Western Australia and adjacent islands. Type locality, Perth, Western Australia.

Loc. Western Australia: W.A.M. R16, R17, no exact data; R4209, Bulong, near Kalgoorlie; also an unregistered cotype with serial No. 456 attached (W.A.M.).

EGERNIA MAJOR MAJOR (Gray).

Tropidolepisma major Gray, 1845, p. 107.

Midbody scale rows 34 and 36, obtusely tri- or quadricarinate; seven or eight upper labials with the fifth and sixth or sixth and seventh subocular; posterior loreal almost square; three pair of enlarged nuchals. Ear opening oval,

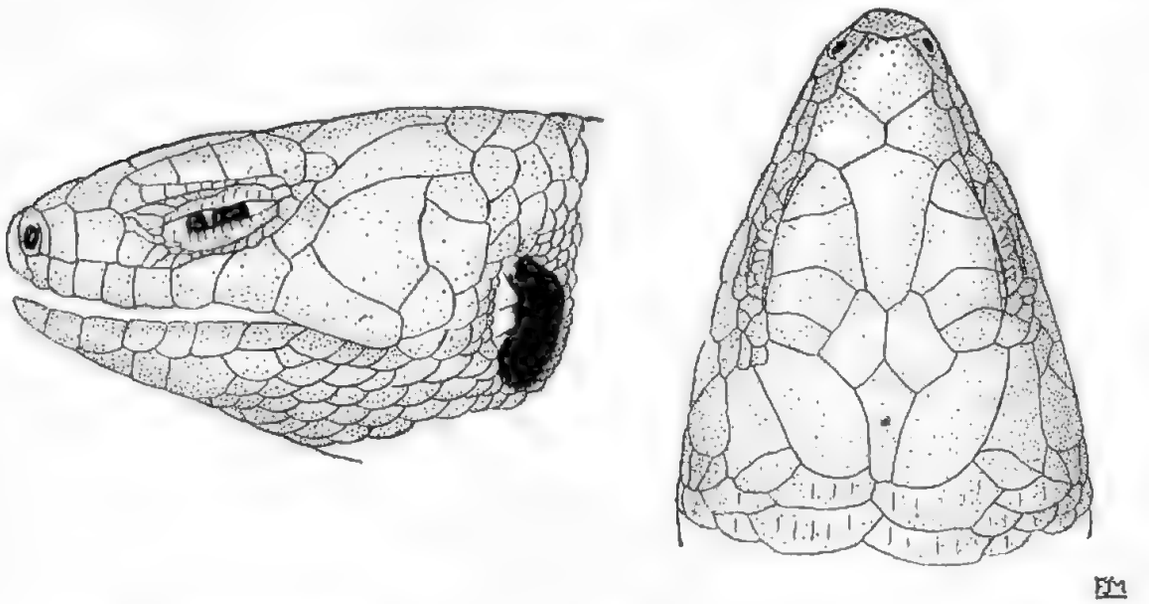

Fig. 3. *Egernia major major* (Gray): dorsal and lateral views of the head.

two thirds the eye opening, with three or four obtuse lobules anteriorly; four doubtfully five supraoculars; eight or nine supraciliaries. A series of laterally expanded upper caudals, similar to those of *striolata*, present toward the tip of the tail. Colour uniform light brown dorsally, with a light grey dorso-lateral stripe. Ventral surfaces yellowish-grey.

Largest specimen (R356). 327 (152 + 175) mm.

Distribution. Northern and Central Queensland; Northern Territory. Type locality, Australia (no exact data).

Loc. Queensland: R356, Stewart River; Northern Territory: R1129, Roper River.

EGERNIA MAJOR BUNGANA De Vis.

Egernia bungana De Vis, 1887, p. 814; Longman, 1918, p. 37, pl. xiii.

Loveridge (1934, p. 338) rightfully throws doubt on the status of this lizard. The author has examined two specimens, an adult and a juvenile from the type locality, Mt. Tambourine, South Queensland, and like Longman (1918, p. 37) has been unable to find any concrete characters which distinguish it readily from *major*, other than the distinctive colouration and the larger size. There are several scalation differences between these specimens and those referred to *major major* above, but owing to the inadequacy of the material available for examination their validity as distinguishing characters could not be tested. However, on present evidence it seems probable that *bungana* will prove to be a good subspecies when more material is available.

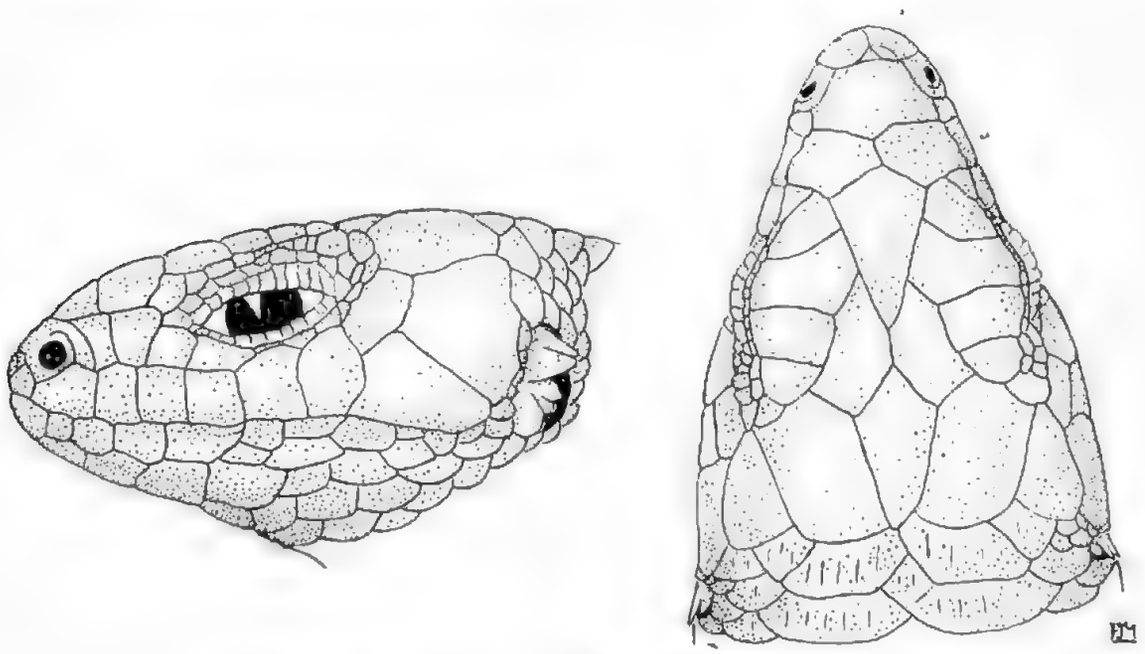

Fig. 4. *Egernia major bungana* De Vis: dorsal and lateral views of the head.

Midbody scales 28; seven upper labials with the fourth, fifth and sixth subocular; posterior loreal is somewhat rhomboidal; four pairs of enlarged nuchals. Ear opening crescentic, only half the eye opening, with three large acute lobules completely obscuring it. Four, doubtfully five supraoculars; ten or twelve supraciliaries. The dorsal colouration is uniform dark umber, almost black, becoming broken and speckled with yellow ventro-laterally to bright lemon yellow ventrally. In the juvenile specimen the lateral surfaces of the body and

tail have occasional white centred scales; also one or two on the sides of the head and neck.

Measurements of adult. 595 (270 + 225) mm.—tail damaged.

Loc. Queensland: R2924, Qld. Mus. J6831, Mt. Tambourine (type locality).

EGERNIA FREREI Gunther.

Egernia frerei Gunther, 1897, p. 405.

This Queensland species appears to be most nearly allied to *E. major*, differing in the possession of obtusely bicarinate dorsal scales, the absence of a postnarial groove and in having a slightly more elongate frontal. Midbody scales in 34 rows. No specimens of this species were examined.

Type locality, Bartle Frere Mountains, Queensland.

EGERNIA DORSALIS (Peters).

Tropidolepisma dorsale Peters, 1873, p. 743.

Egernia rugosa De Vis, 1887, p. 815.

A single specimen from Mungallala, South Queensland (Qld. Mus. J5895) was examined and compared with the description of *rugosa* De Vis (1887). It is concluded that *rugosa* is conspecific with *dorsalis*; the few distinguishing features evident from the description being of an unsatisfactory nature as they have been shown to be very variable within specific limits in other cases.

Dorsal scales quadri- or quinquecarinate, 26 rows at midbody; upper head scales rugose, often subdivided (see fig. 5). Two or three large triangular lobules

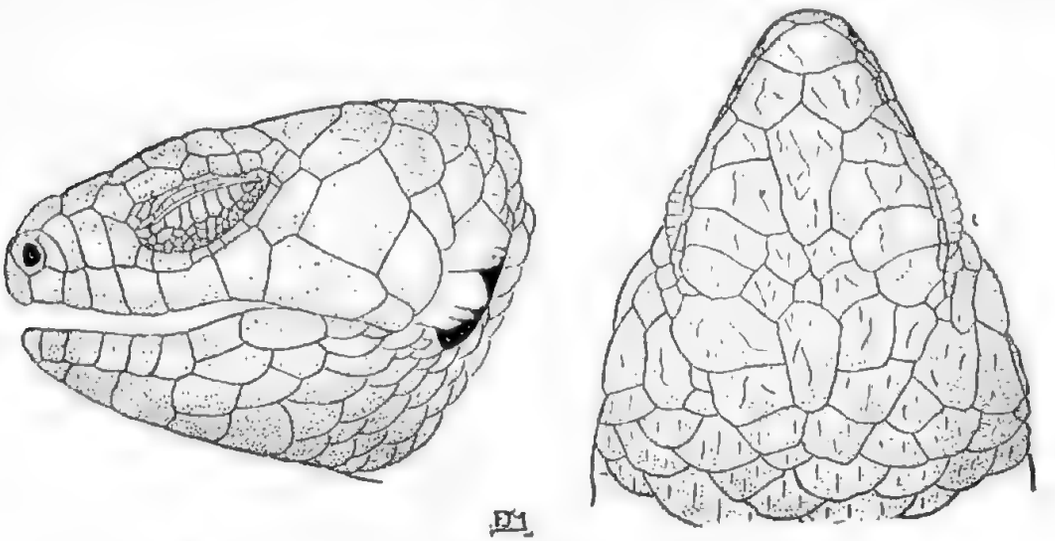

Fig. 5. *Egernia dorsalis* (Peters): dorsal and lateral views of the head.

largely obscure the ear opening; four, doubtfully five supraoculars; five or six supraciliaries. A series of enlarged nuchals and vertebrals present but separated from the parietals by several series of scales (see fig. 5). Adpressed limbs slightly overlapping.

Measurements. 435 (203 + 232) mm.—tail complete.

EGERNIA KINGII (Gray).

Tiliqua kingii Gray, 1839, p. 290.

Midbody scales 34–36; dorsals tri- or quadricarinate. Upper labials irregular—7 + 8 in R97 and 9 + 9 in R242 with the fifth and sixth or sixth and seventh suboocular.

Measurements of the larger specimen (R97): 380 (200 + 180) mm.—tail regenerating.

Distribution. Coastal districts of Western and North-western Australia; adjacent islands. Type locality, Australia (no exact data).

Loc. Western Australia: R97, no exact data; R242 Abrolhos Islands.

EGERNIA CUNNINGHAMI (Gray).

Tiliqua cunninghami Gray, 1832, p. 40.

?Egernia lohmanni Werner, 1917, p. 32.

Midbody scales 36–44, very strongly unicarinate and spinous. Eight or nine upper labials with the sixth and seventh or seventh and eighth contacting the lower eyelid.

Largest specimen (R2933): 322 (162 + 160) mm.

Distribution. Suitable areas in all mainland states. Type locality, West Australia (lat. 29°).

Loc. South Australia: R2127, Monreith; R2304, Aldinga; R950, Mylor; R2930, Burnside, Adelaide; R2931, Mt. Lofty Ranges; R2932, Gawler; R2933, Lyndoch—also ten specimens without locality data.

Egernia lohmanni Werner (1917, p. 32) appears to be very closely allied to if not synonymous with the present species. From Werner's description (1917, p. 32) it appears to differ in having only the seventh upper labial contacting the eyelid, less spinous dorsal and caudal scales and in possessing a series of laterally expanded upper caudal scales. As pointed out by Loveridge (1934, p. 341) a probable explanation of this latter character is a reproduced tail. Laterally expanded upper caudals are evident in some reproduced sections of the tail in *major, formosa* and *kingii*. In all other scale details and in colour pattern it agrees closely with *cunninghami*.

EGERNIA STOKESII (Duméril).

Silubosaurus stokesii Duméril, 1851, p. 180.

The forty-four specimens examined showed the following variations. Midbody scales in 32 rows (9 specimens); 34 rows (25 specimens); 36 rows (10 specimens); nasals separated or just contacting medianly; prefrontals with a long or short median suture. Dorsal and caudal scales generally unicuspid although some specimens show bilateral keels.

Measurements of an average adult. 240 (168 + 72) mm.

Distribution. Widely distributed in Western and Central Australia. Probably occurs in the drier parts of all mainland states except Victoria. Type locality, Houtman's Abrolhos, Western Australia.

Loc. South Australia: R1797, Quorn; R2060, R2929 (2 specimens), Port Augusta; R1480, Cludamook Station, East-West Railway; R2928, 20 miles north of Macumba Creek; R98, Mern Merna; R2335, Nackatoo; R2119, Pygery; R1278 (2 specimens), Owieandana; R575, Mooloolo. Northern Territory: R314 (5 specimens), Macdonnell Ranges. Western Australia: R243, R244, R245, Abrolhos Islands. Also fourteen specimens without locality data.

EGERNIA DEPRESSA (Gunther).

Silubosaurus depressus Gunther, 1875, p. 15.

Midbody scales in 30–36 rows, tricuspid; frontonasal making contact with or separated from the rostral; post-narial suture completely dividing the nasal shield.

Measurements of an average adult. 153 (109 + 44) mm.

Distribution. South Western Australia. Type locality, Swan River, Western Australia.

Loc. Western Australia; R2926, Murchison District; R2927 (6 specimens), between Ashburton and Gascoyne Rivers; R167, Beverley.

The close superficial resemblance of this species to *E. stokesii* suggests at once the possibility of their being subspecifically related; they seem to share, however, a common area of distribution.

TILIQUA Gray (1825, p. 201).

Trachysaurus Gray, 1827, p. 430.
Cyclodus Wagler, 1828, tab. 6; 1830, p. 162.
Brachydactylus Smith, 1835, p. 144.
Cyclodomorphus Fitzinger, 1843, p. 23.
Omolepida Gray, 1845, p. 87.
Trachydosaurus Gray, 1845, p. 102.
Hemisphaeriodon Peters, 1867, p. 24.

Apart from the osteological characters drawn attention to in the introductory chapter, the species of *Tiliqua* show the following differences from those of *Egernia*.

Lateral teeth generally less than thirty-five in number with obtusely conical or spheroidal crowns, not recurved; pterygoids toothless. The palatine bones are on the whole not as widely separated and actually make contact in several species. The general form is a little more elongate; the scalation is very similar to that of *Egernia*.

KEY TO THE SPECIES AND SUBSPECIES OF *TILIQUA*.

1. Tail much shorter than the head and body; a complete series of suboculars 5
2. Tail almost as long as or longer than the head and body; with or without a complete series of suboculars 3

3. A complete series of suboculars .. .. *luctuosa*
4. An incomplete series of suboculars 19

5. Tail depressed, stump-like .. .. *rugosa*
6. Tail tapering uniformly to a point 7

7. Tail subcylindrical 9
8. Tail compressed .. .. *adelaidensis*

9. Anterior temporals much larger than others 11
10. Anterior temporals subequal to others 15

11. 28–34 scales at midbody 13
12. 34–40 scales at midbody .. .. *scincoides scincoides*

13. Forelimb longer than the head .. .. *scincoides gigas*
14. Forelimb shorter than the head .. .. *scincoides keiensis*

15. 28–30 midbody scales .. .. *nigrolutea*
16. 38–42 midbody scales 17

17. 4–7 darker body bands .. .. *occipitalis occipitalis*
18. 11–15 darker body bands .. .. *occipitalis multifasciata*

19. Post-narial groove present 21
20. Post-narial groove absent 23

21. 22–26 scales at midbody .. .. *branchiale branchiale*
22. 28 scales at midbody .. .. *branchiale woodjonesii*

23. Body and tail with dark transverse bands .. .. .. *gerrardii*
24. Body and tail without dark transverse bands 25

25. Ear lobules inconspicuous or absent .. .. *casuarinae casuarinae*
26. Ear lobules conspicuous—one or more .. .. .. *casuarinae petersi*

TILIQUA SCINCOIDES SCINCOIDES (Shaw).

Lacerta scincoides Shaw, 1790, 242, fig.

Midbody scales in 34–38 rows; prefrontals forming a median suture; nasals generally contacting medianly. Seven to nine darker cross-bands on the body and seven to ten on the tail.

The four specimens from Queensland and Groote Eylandt are much longer than the average South Australian adult of this species and they possess a distinctive colour pattern. An examination of a larger series may reveal them to be subspecifically distinct.

Average adult length, 441 (293 + 148) mm.

Distribution. All states of Australia including Tasmania; Islands in the Torres Straits. Type locality, Australia (no exact data).

Loc. South Australia: R52, Ironbark; R190, Bridgewater; R191, Glen Osmond; R263, Mt. Compass; R290, Mt. Pleasant; R520, Moolooloo; R643, Torrens Gorge; R635, Kangarilla; R644, Mt. Lofty Ranges; R1311, St. Peters, Adelaide; R1491, Payneham, Adelaide; R1473, Smoky Bay; R1578, Native Valley; R1730, Happy Valley; R2052, Avenue Ranges; R2061, near Pt. Augusta; R2070, Willunga; R2097, Auburn; R2103, Kersbrook; R2149, Morphett Vale; R2125, Delamere; R2149, Norwood, Adelaide; R2218, Nuriootpa; R2490, Myponga; R2491, Campbelltown; R2492, South-Eastern South Australia; R2493, Quorn; R2501, Cherry Gardens. (Owing to the shortage of storage space many of the specimens of this common South Australian species were not retained after identification.) Queensland: R199, Bundaberg; R349, R350, Stewart River. Northern Territory; R1134, Groote Eylandt.

TILIQUA SCINCOIDES GIGAS (Schneider).

Scincus gigas Schneider, 1801, p. 202.

Tiliqua scincoides gigas Loveridge, 1948, p. 339.

A single juvenile specimen was examined. Midbody scales in 32 rows; interparietal much narrower than the parietals and shorter than the anterior temporals; median dorsal and caudal scales smooth. The fifth, sixth and seventh upper labials subocular (De Rooij, 1915, p. 157, figures sixth, seventh and eighth subocular). The length of the forelimb goes 1¾ times into the axilla-groin measurement. Body traversed by 7–8 narrow black bands.

Measurements of this specimen. 144 (90 + 54) mm.

Measurements of an adult specimen. 557 (312 + 245) mm.—De Rooij, 1915.

Distribution. New Guinea, Java, Sumatra(?), and many of the adjacent islands. Type locality, Amboina Island, off Ceram.

Loc. R1639, Tanpora Island, near the south-eastern tip of New Guinea.

Loveridge (1948, p. 339) has concluded from the presence of *keiensis* Oud. that *gigas* is only a subspecies of *scincoides*. Although the above possibility is not disputed, the supposedly self-contained ranges of the various forms being suggestive of a chain of subspecies, the presence of a morphologically intermediate form isolated on an island does not necessarily eliminate the possibility of the two lizards being specifically distinct. Subspecific relationship is tentatively accepted until more data is available for consideration.

TILIQUA GERRARDII (Gray).

Hinulia gerrardii Gray, 1845, p. 75.

Midbody scales in 32 rows; sixth upper labial entering the orbit, sixth and seventh subocular.

Measurements of an adult specimen. 345 (148 + 197) mm.

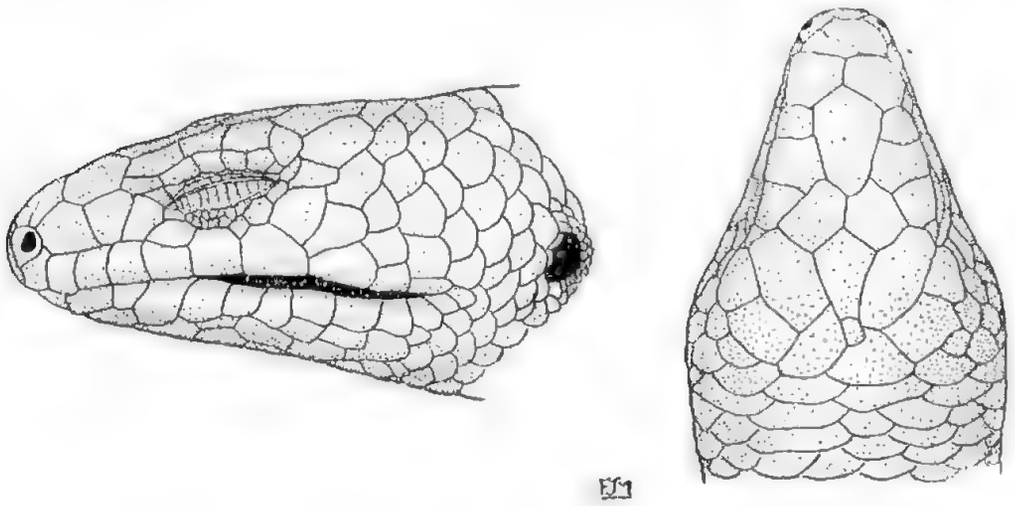

Fig. 6. *Tiliqua gerrardii* (Gray): dorsal and lateral views of the head.

Distribution. Inhabits the eastern coastal country of Queensland and northern New South Wales. Australian and Queensland Museum locality records indicate a distribution as far south as Wingham, New South Wales and north to Rockhampton in Queensland. Type locality, Australia (no exact data).

Loc. Queensland: R2934, Herston, Brisbane.

This specimen was received in exchange from the Queensland Museum where it was registered as J4611.

TILIQUA OCCIPITALIS OCCIPITALIS (Peters).

Cyclodus occipitalis Peters, 1863, p. 231.

Midbody scales in 38 rows (4 specimens); 40 rows (7 specimens); 42 rows (3 specimens); supraoculars 2 or 3; supraciliaries 5 or 6. Median suture of the prefrontals varying from point contact to half the length of the frontonasal; nasals narrowly separated behind the rostral. As with other species in this genus the forelimb into axilla-groin ratio varies greatly with the age of the specimen. Darker body bands 4–7, tail bands 3–4.

Measurements of an average adult. 401 (287 + 114) mm.

Distribution. Southern parts of Western Australia, South Australia and New South Wales; also northern Victoria. In spite of the reference by Waite (1929, p. 146) to this species as "somewhate rare" in South Australia it appears to be quite abundant on the coastal flats north of Adelaide where it occurs to the exclusion of the more common *scincoides*. Type locality, Adelaide, South Australia.

Loc. South Australia: R394, Strathalbyn; R2740, Murray River; R2741 (6 specimens), Balhannah; R2742, Tintinara; R3010, Port Parham, R3011, Lower Light—also registered as having been taken at R189, Milang; R960, One Tree Hill; R977, Berri and R1021, Murray Bridge. Western Australia: R2718, R2719, R2720, Frazer Range; R2722, between Ashburton and Gascoyne Rivers. New South Wales: R2743, Wentworth.

TILIQUA OCCIPITALIS MULTIFASCIATA Sternfeld.

Tiliqua occipitalis multifasciata Sternfeld, 1919, p. 79; Loveridge, 1934, p. 343.

Tiliqua occipitalis auriculare Kinghorn, 1931, p. 88.

Typical specimens of this well defined race are readily distinguishable from the nominate form by the much larger ear opening, partial separation of the frontoparietals by the interparietal and the distinctive colouration. Midbody scales in 38–42 rows (Kinghorn, 1931 records 45 for *auriculare*); 12–15 darker bands on the body, 11–13 on the tail.

Five specimens (R2746) are labelled as having been the complete brood of a female (R2745) from Tennant Creek, Northern Territory. These five specimens appear to have been preserved soon after birth, their umbilical areas being still protrusive. They measure 100–108 mm. and were taken in April.

Fig. 7 is of one of these juveniles and it illustrates the relative size of the ear opening and the partial separation of the frontoparietals.

Distribution. Has been recorded from North-western Australia, Northern Territory and south to Killalpaninna Mission Station in South Australia at which station it was known to the natives as [jidna]. Probably also occurs in South-western Queensland, Northern and Central New South Wales. Type locality, Hermannsburg Mission, Northern Territory.

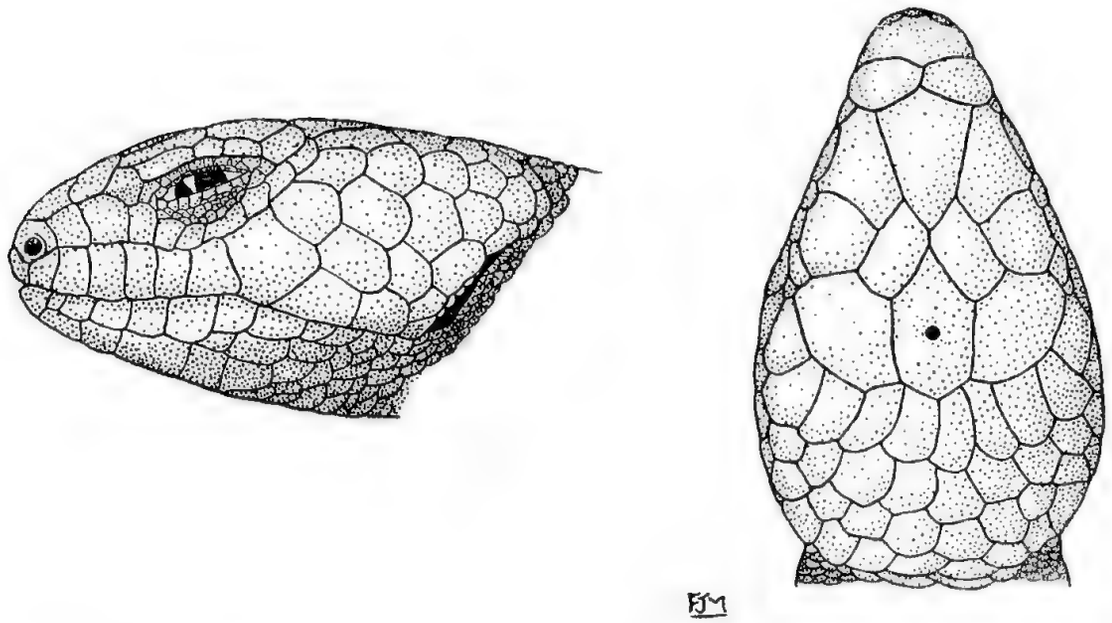

Fig. 7. *Tiliqua occipitalis multifasciata* Sternfeld: dorsal and lateral views of the head of a juvenile.

Loc. Northern Territory: R2744, R2745, R2746 (5 specimens), R2747 (3 specimens), Tennant Creek; R2723, R2724, unlocalized; R323, Macdonnell Ranges. South Australia: R2736, Killalpaninna Mission Station.

TILIQUA NIGROLUTEA Gray.

Tiliqua nigroluteus Gray, 1831, p. 68.

Midbody scales 28 or 30; four supraoculars; five or six supraciliaries.

Measurements of an average adult. 376 (251 + 125) mm.

Distribution. This species has been recorded from South-eastern South Australia, Victoria, South-eastern New South Wales, Tasmania and islands in Bass Strait. Loveridge (1934, p. 343) also records a specimen without localized data from Western Australia. Type locality, Australia (no exact data).

Loc. South Australia: R1801, Mt. Gambier; R2748, Robe. Tasmania: R268, Flinders Island.

TILIQUA LUCTUOSA (Peters).

Cyclodus (*Omolepida*) *luctuosus* Peters, 1866, p. 90.

Egernia lauta De Vis, 1887, p. 873.

Egernia luctuosa Boulenger, 1887, p. 135.

An examination of the type specimen of *E. lauta* De Vis (Qld. Mus. J249) has revealed it to be synonymous with *luctuosa*, now more correctly placed in the genus *Tiliqua*; the condition of the palatal sutures and the general form support this transfer (see fig. 1).

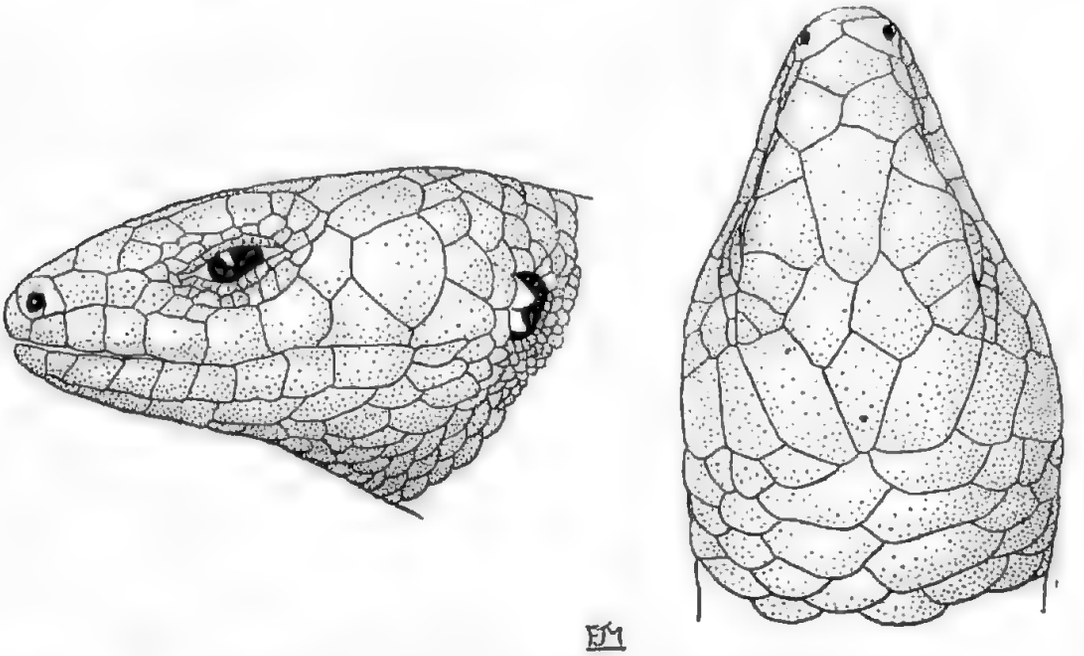

Fig. 8. *Tiliqua luctuosa* (Peters): dorsal and lateral views of the head of the holotype of *Egernia lauta* De Vis.

Midbody scales in 24 rows (4 specimens); 25 rows (2 specimens), 26 rows (3 specimens); supraoculars four, doubtfully five in some specimens; 7–9 supraciliaries; two or three pair of enlarged nuchals. It is noted that the type specimen of *lauta* has 24 and not 28 midbody scale rows as was indicated in the type description. Nasals separated or making contact on the midline; prefrontals forming a variable length median suture. Limbs meeting or slightly overlapping when adpressed; 23–27 undivided lamellae beneath the fourth toe. A subnarial groove extends up the posterior border of the nostril for some distance before joining it, and thus could be accepted as a postnarial groove.

Measurements of an average adult. 289 (109 + 180) mm.

Distribution. Originally recorded from King George Sound, North Western Australia, this species appears to be common in South-western Australia,

and the record of *lauta* would seem to indicate a distribution extending across the Northern Territory into Queensland.

Boulenger (1887, p. 135) records two specimens of this species and five of *E. kingii* from South Australia. Neither of these species are represented by local material in the South Australian Museum collection and it would seem possible that Boulenger's material was taken in the Northern Territory which politically was once part of South Australia. Both species were collected by a Dr. Fletcher. Type locality, King George Sound, Western Australia.

Loc. Queensland: Qld. Mus. J249, unlocalized (Type of *E. lauta* De Vis). Western Australia: W.A.M. R8476, Denmark; W.A.M. R4419, Chorkerup; R11464, R11465, R11466, Albany; R758, Leederville; R2786, Maylands. (Also one unregistered specimen from the Michaelsen and Hartmeyer collection.)

TILIQUA ADELAIDENSIS (Peters).

Cycladus adelaidensis Peters, 1863, p. 232; Strauch, 1866, p. 458.
Tiliqua adelaidensis Boulenger, 1887, p. 148; Waite, 1929, p. 146.

Since the description of this species by Peters in 1863 considerable doubts as to its validity have been cast, it being mentioned by Waite (1929, p. 146) quoting the suggestion of Lucas and Frost (?) that *adelaidensis* was described from a juvenile of one of the larger species, possibly *T. occipitalis* Peters.

Six specimens of this rare species have now been found reposing under various names in the South Australian Museum Collection and from these a topotype has been chosen and a detailed redescription compiled from it. Three of these specimens are unfortunately without adequate locality data, having been labelled by A. Zietz "*Omolepida* or *Egernia* sp.—Central South Australia." The topotype (R2229), a specimen from Dry Creek, South Australia (now an outer suburb of Adelaide) had been wrongly identified as *Egernia whitei* var. a species to which it bears little resemblance. The remaining two specimens were received from near Burra, South Australia in 1945.

In his synopsis of the species of *Tiliqua* (1937, p. 232) M. A. Smith gives the range of *Tiliqua adelaidensis* as "Australia and Tasmania." If correct, this would indicate that he had examined specimens from Tasmania, because as far as I am aware the only previously recorded specimens are Peters' type and a specimen in the British Museum recorded by Gunther (1867, p. 48) and Boulenger (1887, p. 148). Both were taken at or near Adelaide, South Australia.

Description. Snout short, pointed; rostral not projecting, visible dorsally to about one third the length of the frontonasal; nasals meeting at a point behind

the rostral; a small post-narial groove present. Frontonasal large, slightly wider than long; prefrontals small, in contact mesially by a distance equal to one third of the frontonasal length. Frontal 1¾ times as long as wide; slightly wider than the supraoculars and twice the maximum length of the frontoparietals which have a median suture equal to that of the prefrontals. Three supraoculars, the second largest and the first two in contact with the frontal; five supraciliaries, second largest. Interparietal large, smaller than the frontal, completely separating the parietals which are about twice as long as broad. Temporals 2 + 3, upper posterior large, elongate, twice as long as wide; lower anterior small, triangular; central posterior roughly rhomboidal; lower posterior small and rounded. Eight upper and eight lower labials, the fifth, sixth and seventh upper labials subocular; the seventh greatly enlarged. A complete series of infraoculars separate

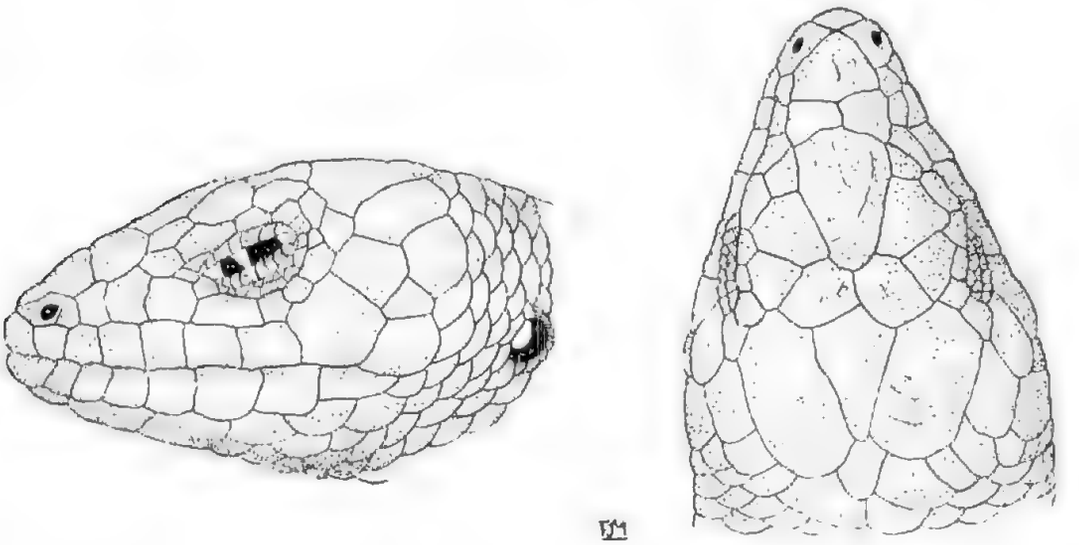

Fig. 8. *Tiliqua adelaidensis* (Peters): dorsal and lateral views of the head of the topotype.

the upper labials from the lower eyelid. A single pair of enlarged nuchals are separated from the interparietal by a small azygous scale; a pair of slightly enlarged anal plates present. Thirty-six smooth scales at midbody, rapidly increasing to forty-two or forty-four as the count nears the shoulder; ventrals largest. Tympanal opening oval, smaller than the eye opening; with one rounded lobule anteriorly. Fore and hind limbs of equal length and when adpressed along the body they fail to meet by a distance equal to their own length. The tail, which is shorter than the combined head and body measurement is strongly compressed and tapers rapidly to a fine point.

Colour (in spirit). General base colour grey-brown, lightening ventrolaterally to light blue-grey below. The dorsal and dorsolateral surfaces are broken

with an irregular mottling of darker spots and blotches. The limbs and tail have a rusty tinge. The ventral scales are dark edged giving the appearance of darker grey lines running between the series of scales. Ventral surface of tail and gular region nearly white.

Measurements. Total length, 138 mm.; tail length, 50 mm.; body length, 71 mm.; head length, 17 mm.; fore and hind limbs, 17 mm.

Loc. South Australia: R2227 (3 specimens), "Central South Australia"; R2228 (2 specimens) near Burra; R2229, Dry Creek (Adelaide).

VARIATION NOTED: Where more than one specimen is listed under one registration number the individuals are designated a, b, c, etc. in descending order of size. *Frontal*: In specimens R2227 a, b, c, and R2229 it is as wide as the interparietal while in R2228a and b it is narrower. In all specimens it is 1¼ to 1½ times as long as the interparietal. *Nasals*: They are separated by the frontonasal which forms a short median suture with the rostral in specimens R2227a, R2228a and b. In the other three specimens the nasals, frontonasal and rostral meet at a point. *Temporals*: The temporal counts vary as follows—R2227a, 2 + 3, 2 + 4; R2227b, 2 + 3, 1 + 3; R2227c, 2 + 3, 2 + 3; R2228a, 3 + 3, 3 + 3; R2228b, 2 + 3, 3 + 3; R2229, 2 + 3, 2 + 3. *Nuchals*: These vary from one pair in specimens R2227b, c, R2228 and R2229 to two pairs in R2227a and three pairs in 2228b. Except where separated by a small azygous scale as in R2229 and R2227c the first pair make contact with the interparietal. *Scale counts*: The midbody count varies from 34–38 and at the shoulder from 40–45. Owing to this irregularity it is essential that the body count be taken exactly at midbody.

Measurements. It is noticeable that the three "Central South Australian" specimens (R2227a, b, c) possess tails longer in relation to the total and body lengths. The total length—tail length ratios are as follows: R2227a, 139/58 mm.; R2227b, 123/53 mm.; R2227c, 121/48 mm.—R2228a, 123/44; R2228b, 94/36 mm. and R2229, 138/50 mm.

The scalation, although typical of the genus, does not suggest any immediate relationship and the lizard's strongly compressed tail and uniform sub-conically crowned teeth are not represented in any other species.

TILIQUA RUGOSA (Gray).

Trachysaurus rugosus Gray, 1827, p. 430.

Midbody scales 22–30; two or three supraoculars; interparietal completely dividing the parietals. A single pair of slightly enlarged nuchal scales are generally separated from the interparietal by an azygous occipital. Dorsal scales generally rugose, but sometimes smooth with an obtuse central keel. There is a

tendency for the parietal scales to become subdivided and in several of the specimens examined only the interparietal remains intact, the frontoparietals and parietals having been greatly subdivided.

The South Australian Museum collection contains two pairs of Siamese Twin lizards of this species. In both cases the two young are united at the head and shoulders.

Measurements of an average adult. 352 (265 + 87) mm.

Distribution. The drier parts of all mainland states. Type locality, King George Sound, Western Australia.

Loc. South Australia: R1396, R1397, Ooldea; R1802 (2 specimens), Minlaton; R258, Lucindale; R755, R756, Devil's Village; R1254, Tepko; R1256, Maitland; R1277 (3 specimens), Northern Flinders Ranges; R1393 (13 specimens), Victor Harbour; R2553, Spalding Cove; R2587, Port Pirie; R2801, Whittata, also twelve specimens taken in and about the suburbs of Adelaide and several others without localized data. Western Australia: R1609; R229, R230, Warren River.

TILIQUA BRANCHIALE BRANCHIALE (Gunther).

Hinulia branchialis Gunther, 1867, p. 47

Lygosoma (Omolepida) branchiale Boulenger 1887 p. 321 pl. xxvi fig. 2, Werner, 1910, p. 479.

Lygosoma melanops Stirling and Zietz 1893, p. 173, pl. vi, fig. 3.

Omolepida melanops Loveridge, 1934, p. 365.

Lygosoma gastrostigma Boulenger, 1893, p. 922, pl. lvii, fig. 2.

Tiliqua branchiale Smith, 1937, p. 233.

Loveridge (1934, p. 365) condemns the action of F. R. Zietz (1920, p. 214) in placing *Lygosoma melanops* Stirling and Zietz in the synonymy of *Lygosoma branchiale* Gunther. As he does not record having examined any specimens and was presumably working only on the published descriptions, I am inclined to consider that he was misled into formulating this criticism. I have re-examined the type specimens of *melanops* (R2732) and have compared them with thirteen additional specimens from South and Central Australia as well as seven from Western Australia and can find no valid structural differences, the only variation being in colouration as is indicated by the various published descriptions. Loveridge presumably examined the figure of Stirling and Zietz (1893, pl. vi, fig. 3a) which is inaccurate. It shows the frontoparietals fused, a condition which is not present in either of the types.

Loveridge (1934, p. 366) pointed out, when dealing with *O. casuarinae petersi* Sternfeld, that the number of supraoculars can often be alternatively translated, dependent on whether the last scale is accepted as a supraocular or an upper post-ocular. This is applicable in the present case, the number having been alternatively translated as three (*melanops* and *woodjonesii*) or four (*branchiale* and *gastrostigma*). The colour variation does not appear to be correlated in any way with the other variable features, viz. the relative size of the ear opening, body proportions and distribution. The tip of the snout to fore-limb into axilla-groin proportion has been found essentially an age/sex character and of no systematic value (see also Loveridge, 1948, p. 309). Midbody scales in 24 rows (2 specimens); 26 rows (17 specimens).

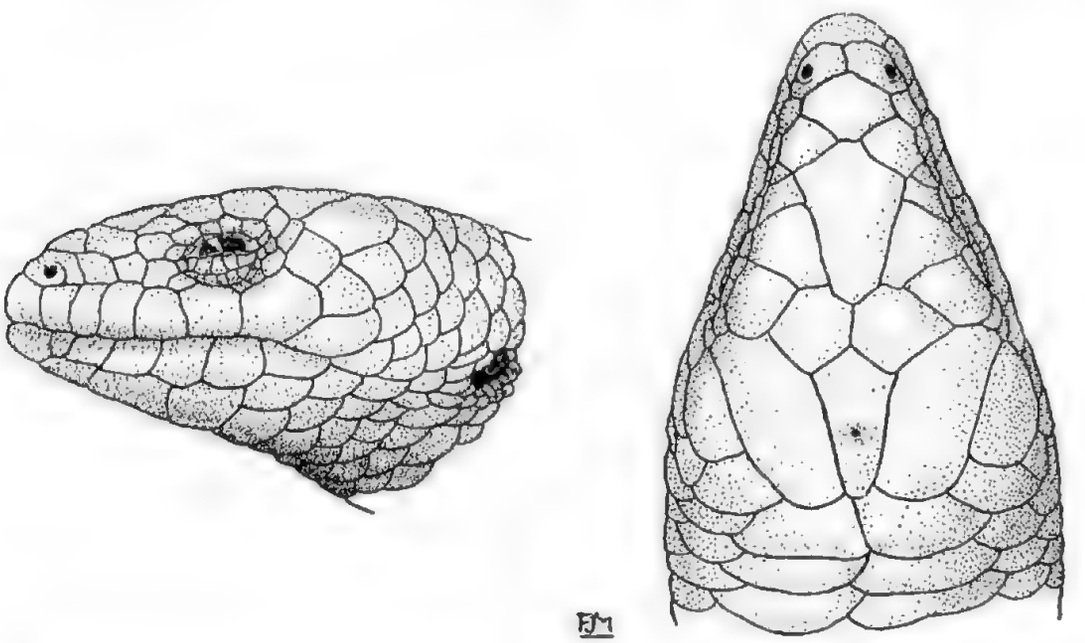

Fig. 10. *Tiliqua branchiale branchiale* (Gunther): dorsal and lateral views of the head of the holotype of *Omolepida melanops* Stirling and Zietz.

Measurements of an average adult. 160 (85 + 75) mm.

Distribution. Western Australia, South Australia and the Northern Territory. Type locality, Champion Bay, Western Australia.

Loc. South Australia: R2730, Kangaroo Island; R2731, Barton; R2732 (2 specimens), between Everard and Barrow Ranges (Types of *L. melanops* S. and Z.); R2733, Pt. Augusta; R2734, between Ooldea and Talarinna. Northern Territory: R2735, Hermannsburg. Western Australia: W.A.M. R416, R444, Perth; W.A.M. R1724, R1725, R1726, R1727, Newmarracarra, 19 miles east of Geraldton; W.A.M. R4783, North Beach, near Perth.

TILIQUA BRANCHIALE WOOD-JONESII (Proctor).

Lygosoma (*Homolepida*) *woodjonesii* Proctor, 1923, p. 80.

This insular race differs from its nominate form in possessing 28 instead of 24–26 midbody scales and in several other minor scalation details. Of the eight St. Francis Island specimens examined seven possessed 28 midbody scale rows and one 26, although in this latter specimen 28 could be counted at a point forward of midbody. The colouration is uniform dark grey dorsally, each scale edged with black; lighter ventrally.

Loc. South Australia: R1198, R2728 (3 specimens), R2729 (4 specimens), St. Francis Island.

TILIQUA CASUARINAE CASUARINAE (Dumeril and Bibron).

Cyclodus casuarinae Dumeril and Bibron, 1839, p. 749.

Midbody scales in 22–24 rows; three supraoculars. Prefrontals separated or forming a short median suture; nasals meeting at a point behind the rostral.

Measurements of an average adult. 276 (149 + 127) mm. tail reproduced.

Distribution. Tasmania, Victoria and coastal parts of Southern New South Wales. Type locality, Australia (not localized).

Loc. Tasmania: R2231 (6 specimens), unlocalized.

TILIQUA CASUARINAE PETERSI (Sternfeld).

Lygosoma (*Lygosoma*) *mulleri* Peters (*non.* Schlegel), 1878, p. 181.
Lygosoma (*Homolepida*) *petersi* Sternfeld, 1919, p. 81.

Midbody scales in 24 rows; three supraoculars; prefrontals forming a median suture, nasals meeting at a point behind the rostral.

This subspecies appears to have been formed on slender grounds, the only evident differences from the nominate race being the more uniform colouration and the greater development of the auricular lobules, both of these are weak characters and must be subject to considerable variation.

Distribution. South and Central Australia. Type locality, Hermannsburg Mission, Northern Territory.

Loc. South Australia: R59 (3 specimens), unlocalized.

SUMMARY.

A synopsis of the salient features and variation shown by species of the genera *Egernia* and *Tiliqua* is based on a series of approximately 475 specimens contained in the collections of the South Australian, Western Australian and Queensland Museums.

It is submitted that there are grounds sufficient to warrant the following taxonomic changes.

Osteological and dental characters are used as supporting evidence for the following generic reshuffle:

Trachysaurus Gray (1827) and *Hemisphaeriodon* Peters (1867) = *Tiliqua* Gray (1825).

Egernia luctuosa (Peters) is transferred to the genus *Tiliqua*.

Dermal characters are used to support the following specific changes:

Lygosoma melanops Stirling and Zietz = *Tiliqua branchiale branchiale* (Gunther.

Egernia whitei tenebrosa Condon = *Egernia whitei whitei* (Lacepede).

Egernia whitei carnarae Kinghorn and *Lygosoma* (*Hinulia*) *breviunguis* Kinghorn = *Lygosoma* (*Sphenomorphus*) *ocelliferum* Boulenger.

? *Egernia lohmanni* Werner = *Egernia cunninghami* (Gray).

Egernia dahlii Boulenger = *Egernia kintorei* Stirling and Zietz.

Egernia rugosa De Vis = *Egernia dorsalis* (Peters).

Egernia lauta De Vis = *Tiliqua luctuosa* (Peters).

Egernia carinata Smith = *Egernia striolata nitida* (Gray).

The following are regarded as subspecies:

Egernia bungana De Vis is placed as a race of *Egernia major* (Gray).

Lygosoma (*Homolepida*) *woodjonesii* Proctor is placed as a race of *Tiliqua branchiale* (Gunther).

Egernia napoleonis (Gray) is placed as a race of *Egernia whitei* (Lacepede).

Egernia nitida (Gray) is placed as a race of *Egernia striolata* (Peters).

A lectotype of the poorly described *Egernia kintorei* Stirling and Zietz and a topotype of the little known *Tiliqua adelaidensis* (Peters) are fully described. A dichotomic key has been constructed for each of the two genera recognised and figures are given of species previously not adequately illustrated.

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